

REMARKS/ARGUMENTS

Amendments to the Claims

Claims 1, 5, 9, and 10 have been amended to correct typographical errors. No new matter is introduced.

- 5 Claim 11 has been amended to clearly define that the operational firmware stored in the volatile memory is executed by the microprocessor. This amendment is fully supported by the specification paragraphs [0030] and [0035]. No new matter is introduced.

Consideration of the claim amendments is respectfully requested.

10 **Double Patenting Rejection**

Claims 1-4, 21 & 23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of copending Application No. 10/710,097.

15 **Response:**

- Claim 1 of the copending application (U.S. Patent Application No. 10/710,097) includes the limitation "the control circuit is electrically coupled to a non-volatile memory which stores a second operational firmware," which is not recited in either of
- 20 claims 1 and 21 of the instant application (U.S. Patent Application No. 10/709,735). As disclosed in paragraph [0013] of the copending application, "The second operational firmware stored in the non-volatile memory includes read operation firmware to enable the optical disc drive to read data stored in the disc. Therefore, when the first operational firmware from the external host is damaged for some reasons, a new operational firmware
- 25 can still be read out from a disc and stored into the external host for the next download," it is clear that a non-volatile memory is additionally implemented to store a second **operational firmware** for handling exceptions (e.g., the first operational firmware is

damaged). This is an improvement to the optical disc drive configuration disclosed in the instant application. In other words, the optical disc drive of the instant application benefits greatly from the implementation of the claimed feature disclosed in the copending application. Applicants therefore assert that the claimed feature “the control circuit is electrically coupled
5 to a non-volatile memory which stores a second operational firmware” in claim 1 of the copending applicant is not an obvious variation of the invention defined in claim 1 or 21 of the instant application. As a result, either of claims 1 and 21 in the instant application is patentably distinct from claim 1 of the copending application. Additionally, claims 2-4 and 23 are dependent upon claims 1 and 21 respectively, and should be patentably distinct from the
10 invention claimed in the copending application accordingly. Withdrawal of the provisional obviousness-type double patenting rejection is respectfully requested.

Claim Rejections

15 1. Claims 1, 2 & 5-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Hu (US Patent # 6,170,043).

Response:

20 **Claim 1**

Regarding claim 1, applicants deem that Examiner misinterprets Hu’s teachings. As disclosed in col. 3, lines 25-26, “The system control chip 200 includes an extra memory 202, such as a dynamic random access memory(DRAM),” and col. 3, lines 43-44, “The buffer memory 212 preferably is a DRAM...,” it is clear that **both the extra memory 202 and the
25 buffer memory 212 taught by Hu are volatile memory components.**

Hu teaches utilizing the extra memory to store general information, such as information from the CD, and utilizing the buffer memory to buffer data to be transmitted to the external computer host when the CD-ROM system is operated at a normal mode (col. 3, line 48 - col.

4, line 7). In other words, Hu teaches storing the operational firmware in the flash memory under the normal mode, and never teaches or suggests enabling the microprocessor to execute the operational firmware while stored in a volatile memory. Furthermore, as disclosed in col. 4, lines 16-24, “ At this update mode, the extra memory 202 is used to store the update
5 program routine, and the program code data are first stored in the buffer memory 212. The microprocessor 204 reads instructions, which reside in the update program routine, from the extra memory 202 and executes the instructions. The program code data stored in the buffer memory 212 are sequentially written into the flash memory 210,” Hu does teach using the microprocessor 204 to perform firmware execution according to the update program routine
10 buffered in the extra memory 202 to load the program code data from the buffer memory 212 into the flash memory 210 in the update programming mode; however, referring to specification paragraph [0025] of applicants’ application, “...It is important to note that the firmware can be broken down into two major categories. The first category of firmware, which in this paper will be termed “operational firmware”, comprises all of the data,
15 commands, programs, instructions, and other information used to perform the normal operations of the optical disc drive...,” it is clear that **the cited update program routine does not belong to the operational firmware as defined in applicants’ application since it is executed in an update programming mode instead of a normal mode.** Hu merely teaches executing the update program routine stored in the extra memory 202, which is a
20 volatile memory, to control the firmware data updating in the update programming mode, and does not teach executing the update program routine stored in the extra memory 202 to perform normal operations of the optical disc drive in the normal mode or executing the firmware stored in the buffer memory 212 to perform normal operations of the optical disc drive in the normal mode. According to Hu’s teachings, the normal operations of the optical
25 disc drive in the normal mode are performed only by using the firmware information stored in the flash memory 210. Compared to Hu’s teachings, applicants’ application discloses that the operational firmware is read from the interface unit, transferred to a volatile memory, and then executed by the microprocessor to perform the normal operations of the optical disc

drive in the normal mode while stored in the volatile memory. As one can see, the claimed feature, “a microprocessor electrically coupled to the control circuit for **executing the operational firmware while stored in the volatile memory**” is neither taught nor suggested by Hu.

5 According to above arguments, applicants believe that the rejections under 35 U.S.C. 102(b) are overcome, and claim 1 has been placed in condition for allowance.

Claims 2 & 5-10

10 Claims 2 & 5-10 are dependent upon claim 1, and should be allowed if claim 1 is found allowable.

Claim 11

15 Referring to above arguments under Claim 1, applicants believe that the claimed feature “followed by a normal mode wherein a microprocessor of the optical disc drive executes the operational firmware stored in the volatile memory to control normal operations of the optical disc drive” is neither taught nor suggested by Hu. Therefore, claim 11 has been placed in condition for allowance.

Claims 12-15

20 Claims 12-15 are dependent upon claim 11, and should be allowed if claim 11 is found allowable.

Claim 16

25 Referring to above arguments under Claim 1, applicants believe that the claimed feature “the microprocessor executing the operational firmware in the volatile memory to control normal operations of the optical disc drive” is neither taught nor suggested by Hu. Therefore, claim 16 has been placed in condition for allowance.

Claims 17-20

Claims 17-20 are dependent upon claim 16, and should be allowed if claim 16 is found allowable.

5 Claim 21

Referring to above arguments under Claim 1, applicants believe that the claimed feature “a microprocessor executing the operational firmware in the volatile memory for controlling normal operations of the optical disc drive” is neither taught nor suggested by Hu. Therefore, claim 21 has been placed in condition for allowance.

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Claims 22-24

Claims 22-24 are dependent upon claim 21, and should be allowed if claim 21 is found allowable.

15 Claim 25

Referring to above arguments under Claim 1, applicants believe that the claimed feature “a microprocessor for controlling normal operations of the optical disc drive by executing the operational firmware stored in the volatile memory” is neither taught nor suggested by Hu. Therefore, claim 25 has been placed in condition for allowance.

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Claim 26

Claim 26 is dependent upon claim 25, and should be allowed if claim 25 is found allowable.

25 Claim 27

Referring to above arguments under Claim 1, applicants believe that the claimed feature “a microprocessor for executing the downloaded operational firmware while stored in the volatile memory” is neither taught nor suggested by Hu. Therefore, claim 27 has been placed

Appl. No. 10/709,735
Amdt. dated December 21, 2006
Reply to Office action of September 21, 2006

in condition for allowance.

Claims 28-35

5 Claims 28-35 are dependent upon claim 27, and should be allowed if claim 27 is found allowable.

2. Claims 3 & 4 are rejected under 35 U.S.C. 103(a) as being obvious over Hu (US Patent # 6,170,043), as applied to Claim 1 above, and further in view of Kamihara et al. (US PGPub # 2002/0169904).

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Response:

As stated in above arguments, claim 1 has been placed in condition for allowance. Claims 3 and 4 are dependent upon claim 1, and should be allowed if claim 1 is found
15 allowable. Applicants believe that rejections under 35 U.S.C. 103(a) have been overcome.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

Appl. No. 10/709,735
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Sincerely yours,



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- 10 Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 13 hours behind the Taiwan time, i.e. 9 AM in D.C. = 10 PM in Taiwan.)